TCT-78

Retrograde Recanalization of Tibial CTOs

Zaza Kavteladze, Konstantin Bylov, Sergei Drozdov
Centre of Endosurgery and Lithotripsy, Moscow, Russian Federation

Background:The opportunities of endovascular procedures in tibial arteries are growing each year. The primary success of antegrade recanalization of tibial arteries is 65-90%. The use of retrograde recanalization in tibial CTOs increases efficacy of endovascular procedures.
Material and methods: We performed tibial endovascular procedures in 384 patients. 287 (74,7%) of them had occlusive disease of tibial arteries. In 47 (16,3%) cases antegrade recanalization failed and retrograde recanalization was performed. The puncture of peroneal artery failed in 3 cases, in the 1 case was performed arteriotomy of posterior tibial artery. 43 retrograde recanalizations were made: 16 - through anterior tibial artery, 14 - posterior tibial artery, 13 - peroneal artery.
Results: All patients with successful recanalization (40 cases) had good immediate clinical results. Stents was implanted in 25 patients with occlusive dissection. In 27(67,5%) patients PTA in the area of the puncture was performed. Follow-up: from 1 to 60 months.
Conclusion: The treatment of CLI patients with diabetic foot syndrome and tibial CTOs is not a simple deal. The main aim is to provide a blood flow to the foot and endovascular treatment is a method of choice, but antegrade recanalization sometimes fails. The method of retrograde recanalization increases the success of revascularization in foot ischemia treatment.

TCT-79

Endovascular Tibial Interventions In Diabetic Patients with Critical Limb Ischemia(CLI):The Role Of Atherectomy

Sikandar Z Khan, Muhammad A Khan, Peter Connolly, Katherine A Gallagher, Nicholas J Morrissey, James F McKinsey
New York Presbyterian Hospital, New York, NY

Background: Endovascular management has assumed a greater role in the treatment of critical limb ischemia with percutaneous transluminal angioplasty with or without stenting (PTA±S) and atherectomy (ATH) being the principal interventions. The aim of this study was to assess and compare the long-term clinical outcome of tibial endovascular interventions in diabetic patients with critical limb ischemia (CLI).
Methods: A total of 2786 lesion in 1218 patients underwent endovascular treatment for lower extremity (LE) arterial lesions. Out of these, we analyzed tibial lesions in diabetic patients who presented with CLI.Patient demographics, co-morbidities and operative details were collected. All patients were followed clinically and with duplex imaging at 1, 3, 6 and 12 months, and yearly thereafter. Kaplan Meier was used to calculate patencies.
Results:A total of 392 tibial lesions were treated in 211 diabetic patients presenting with CLI.PTA±S was the primary intervention in 200 lesions and ATH in 192 lesions. Mean age was 72.9±10.4 in the PTA±S group and 70.9±12.3 in the ATH group. (p=0.202).Co-morbidities were similar between the two groups(table).95.1% of the ATH group presented with tissue loss as compared to 82.6% of the PTA±S group.(p=0.003)Mean lesion length was 77.53±72.0mm and 56.7±50.4mm in the PTA±S and ATH groups respectively(p=0.002). Thirty-month secondary patency for PTA±S was 46.0±4.9 and for ATH was 57.3±5.3 (p=0.008).Limb salvage at 30 months was 60.3±5.5 and 73.8±6.0 in PTA±S and ATH groups respectively. (p=0.047)

Demographics and Lesion Characteristics

Patient Characteristic(N=211)	PTA ± Stent N=109	Atherectomy N=102	*p* value
Age at Surgery(yrs)(mean±SD)	72.9±10.4	70.9±12.3	0.202
Female N(%)	44 (40.3%)	34 (33.3%)	0.320
Chronic Kidney Disease N(%)	45 (41.3%)	40 (39.2%)	0.780
ESRD N(%)	18 (16.5%)	11 (10.8%)	0.238
HTN N(%)	97 (89.0%)	91 (89.2%)	1.0
Hypercholesterolemia N(%)	52 (47.7%)	58 (56.9%)	0.215
CABG N(%)	24 (22%)	27 (26.5%)	0.521
CAD N(%)	63 (57.8%)	62 (60.8%)	0.676
Smoking N(%)	35 (32.1%)	38 (37.2%)	0.470
Indication Rest Pain N(%)	19(17.4)	5(4.9)	0.003
Tissue Loss N(%)	90(82.6)	97(95.1)	
Lesion Characteristic (n=392)	**PTA ± Stent n=200**	**Atherectomy n=192**	**p-value**
Lesion Length(mm)(mean±SD)	77.53±72.0	56.7 ±50.4	0.002
CTO	71(35.5%)	98(51.0)	0.001
Stenosis	129(64.5)	94(49.0)	
TASC TASC A TASC B TASC C TASC D	16 (8%) 40 (20.1%) 60 (30.2%) 84 (42.0%)	13 (6.8%) 35 (18.2%) 43 (22.4%) 101 (52.6%)	0.182

Conclusion: Diabetic patients with CLI constitute a very high risk group in terms of limb threat and a considerable number of these patients present with tibial disease.The use of atherectomy in the endovascular treatment of tibial lesions in this high risk group is associated with excellent limb salvage.

TCT-80

Endovascular Treatment of Total Occlusion of Aorta: Mid to Long-term Patency

Tae-Hoon Kim[1], Young-Guk Ko[1], Ung Kim[2], Jung-Sun Kim[1], Donghoon Choi[1], Myeong-Ki Hong[1], Yangsoo Jang[1], Won-Heum Shim[1]
[1]Severance Cardiovascular Center, Seoul, Korea, Republic of[2]Inje University Hospital, Pusan, Korea, Republic of

Background: Surgical treatment is the standard therapy for occlusive aortic disease. However, endovascular therapy is less invasive and also feasible in total occlusion of infrarenal aorta. We investigated procedural and long-term clinical outcomes of endovascular therapy of chronic abdominal aortic occlusion.
Methods: Endovascular treatment was attempted in total of 54 patients (44 men; mean age 64.4±11.0 years) with infrarenal aortic total occlusion between January 1995 and December 2009. Endovascular therapy was performed by combined approach from brachial and bilateral femoral arteries.
Results: Technical procedural success was achieved in 48 (88.9%) patients. Reasons for procedural failures were inability of wire passage in 4 patients and large burden of thrombus in 2 patients. Stents were implanted in 40 patients (self-expandable stents in 44 patients, balloon-expandable stents in 4 patients). Seven patients were treated with balloon angioplasty alone and one patient was treated only with local thrombolysis therapy. Of the 48 successful cases, 16 (33%) patients received thrombolytic agents during the procedure. Procedure-related major complications occurred in 5 (10.4%) patients: one died due to aortic rupture the day after the procedure. There were 2 serious neurologic complications, spinal cord infarction and cerebral infarction. There was one with iliac artery rupture after balloon dilation which was treated with a graft-stent. One patient required embolectomy using Fogarthy catheter due to bilateral distal embolism. Overall frequency of distal embolism was 25%. Among 48 patients who achieved procedural success, 5(10.4%) patients required repeat intervention (n=2) or bypass surgery (n=3) during the follow up period (mean 32.4±26.3 months). Primary patency rate was 95% at 1 year, 85% at 2 year and 81% at 3 year.
Conclusion: Technical success rate and long-term outcome of endovascular treatment for aortic total occlusive lesions are acceptable. However, more preventive measures to avoid peri-operative death, serious neurologic or vascular complications may be required for the endovascular therapy of aortic occlusion.

Primary PCI of STEMI

209ABC

Wednesday, September 22, 2010, 3:30 pm – 5:30 pm

(Abstract Nos 81-88)

TCT-81

Prediction of Infarct Size by Magnetic Resonance Imaging Using Multiple Concomitant Angiographic, Biochemical and Electrocardiographic Biomarkers in Patients with ST-Segment Elevation Myocardial Infarction Treated with Primary Percutaneous Coronary Intervention

Wichert J Kuijt[1,2], Joost D E Haeck[2], Peter Damman[2], Niels J W Verouden[2], Mitchell W Krucoff[1], Jan G P Tijssen[2], Karel T Koch[2], Robbert J De Winter[2]
[1]Duke Clinical Research Institute, Durham, NC;[2]Acadmic Medical Center - University of Amsterdam, Amsterdam, Netherlands

Background: Primary percutaneous coronary intervention (PCI) has substantially improved mortality and morbidity in patients presenting with ST-segment elevation myocardial infarction (STEMI). However, complex pathophysiology such as reperfusion injury, microvascular obstruction and distal embolization remain responsible for large myocardial infarct size (IS) which has been consistently correlated with adverse clinical outcome such as death and congestive heart failure. Multiple acute phase angiographic, biochemical and ECG biomarkers aimed at these different processes have been developed. Therefore, we sought to investigate the most predictive combination of peri-procedural biomarkers to predict IS as assessed by cardiac magnetic resonance (CMR) imaging.
Methods: We analyzed 170 patients from the PRoximal Embolic Protection in Acute myocardial infarction and Resolution of ST-Elevation (PREPARE) trial with STEMI <6 hrs who underwent primary PCI with 12-lead digital Holter monitoring, angiographic parameters, biochemical markers and key clinical descriptors available. IS was assessed at 4-6 month follow-up by cardiac magnetic resonance imaging (CMR) late gadolinium enhancement in g/m2. Predictive variables were selected through multivariable linear regression within the groups outlined and candidate variables (p<0.10) were subsequently entered into multivariable linear regression.
Results: Multiple clinical characteristics (age, pulse and anterior location of the infarction), as well as angiographic (myocardial blush grade), ECG [ST-segment recovery (STR) at last contrast injection and 240 minutes after last contrast] and biochemical biomarkers (admission NT-Pro-BNP and admission CK-MB) were identified as candidates for our multi-marker model. After correction for clinical descriptors and biomarkers, pulse (□ 0.074; 95% CI 0.034, 0.114; p<0.001), admission NT-pro BNP (□ 0.001; 95% CI 0.001, 0.002; p=0.003), STR at last contrast (□ -0.035, 95% CI -0.065, -0.004; p=0.023) and STR after 240 minutes (□ -0.068; 95% CI, -0.113, -0.024 p=0.003) remained independent predictors of myocardial IS.
Conclusion: In this study, we found that measures of physiological stress, left ventricular strain and myocellular response to reperfusion were independent predictors of final infarct size assessed by CMR at 4-6 months. These findings offer valuable insight into 1) earlier stratification of patient at high risk of adverse outcome; and 2) identification of patients who may benefit from adjuvant treatment after primary PCI.

TCT-82

Increased 1-year Survival After Adjunctive Thrombus Aspiration for ST-elevation Myocardial Infarction Patients

Wouter J Kikkert[1], Nan van Geloven[1], Bimmer E P Claessen[2], Marije M Vis[1], Jan Baan[1], Karel Koch[1], Robbert J de Winter[1], Jan J Piek[1], Jose P S Henriques[1]
[1]Academic Medical Center, Amsterdam, Netherlands[2]Cardiovascular Research Foundation, Columbia University Medical Center, New York, NY

Background: Adjunctive thrombus aspiration in ST-elevation myocardial infarction (STEMI) improves markers of myocardial reperfusion but evidence for improved clinical outcome is limited. Although not powered to detect a difference in mortality, the TAPAS trial is currently the only randomized trial having demonstrated a reduction in mortality with thrombus aspiration. The aim of the current analysis is to determine whether thrombus aspiration during revascularization for acute myocardial infarction reduces mortality compared with percutaneous coronary intervention (PCI) alone in a large real world patient population.
Methods: Between 1-1-1992 and 1-1-2009, 5851 STEMI patients were treated with primary PCI, who were prospectively entered in our database. Of these, 1650 patients were treated with thrombus aspiration devices. Propensity scores were calculated for each patient and this resulted in a cohort of 1571 thrombus aspiration patients matched to 1571 patients, in whom no thrombus aspiration was performed. After propensity score matching, there were no statistical significant differences in 18 baseline variables, including demographic and pre-procedural variables such as history of diabetes, hypertension, smoking habits, presence of shock, LAD related infarction and other angiographic

ORAL